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Sustaining the Alberta Advantage through Science and Research . . .

. . . 1997/98 Accomplishments of the Alberta Science and Research Authority

ASRA

ALBERTA SCIENCE AND RESEARCH AUTHORITY

Sustaining the Alberta Advantage through Science and Research . . .

. . . 1997/98 Accomplishments of the Alberta Science and Research Authority

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October, 1998

Mission Statement

The Alberta Science and Research Authority will enhance the contribution of science and research to the sustainable prosperity and quality of life of all Albertans

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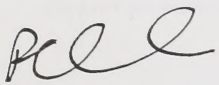
Message from the Chairman of ASRA's Board of Management

The successful development of our natural resources – energy, forestry and agriculture – is due to past investment in technology and people. Future provincial prosperity will draw on a fourth natural resource – knowledgeable people. This year ASRA released a draft strategy "Sustaining the Alberta Advantage". This strategy outlines what we believe it will take to realize the potential inherent in a knowledge and innovation-based economy. By investing in education, research and innovation today, we ensure the youth of Alberta job opportunities in Alberta, as part of the global knowledge and innovation-based economy of tomorrow. "Sustaining the Alberta Advantage" is the result of extensive efforts by the ASRA Board, Secretariat, and many stakeholders across Alberta. The many hours devoted to consultation with Albertans, study and discussion by stakeholders from universities, research agencies and industry resulted in an important conclusion – Albertans recognize that a strong economy has at its roots investment in science & research, regardless of the sector. Success rests with innovative, well-educated Albertans, who can take advantage of Alberta's great natural resources and develop new opportunities on a globally competitive basis.

The year has been a productive one for ASRA as demonstrated by the many accomplishments outlined in this report. The Board also underwent some turnover during the year, with changes in members, and a total increase of Board membership to 25. I extend, on behalf of the Board, my sincere thanks to Dr. Len Bruton, Mr. Monte Montemurro, Mr. Michael Pfeiffer, Mr. Ed Stelmach, and Mr. Ben Thorlakson, for their generous contributions of time and expertise to ASRA. As well, I would also like to extend thanks to Bob Fessenden and the Secretariat staff for their hard work and dedication to ASRA and Ministry duties. Thanks also to Task Force chairs for their guidance and expertise. The collaborative effort of all, has I believe, raised to the consciousness of all Albertans that the proper investment, tax, fiscal and regulatory environments are essential if the Province is to capitalize on its current investment in education and research.

The coming year will be a transition year for ASRA. Our Board will work jointly with the Board of the Alberta Research Council (ARC), to resolve the implementation of the Alberta Science, Research and Technology Authority Act. This Act will consolidate, when proclaimed, ASRA and ARC under a single Board of Management. Looking forward, the new Alberta Science, Research, and Technology Authority Board will build on the momentum established by ASRA from 1995 through 1998, and the 75+ years of achievement at ARC, to further enhance the knowledge and innovation sector. Our goal is sustainable prosperity and quality of life for all Albertans.

In closing, I would like to acknowledge the strong support and cooperation of the Government of Alberta. The support to ASRA by Dr. Lorne Taylor, Minister Responsible for Science, Research and Information Technology and his colleagues is greatly appreciated.



Dr. Robert Church
Chairman of the Board of Management

October 1998

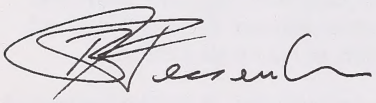
Message from the President of ASRA

During 1997/98, the Alberta Science and Research Authority came into its own as an effective presence in Alberta's Innovation System. Building on the foundation laid during the first few years of its life, ASRA's board and staff have made a series of valuable contributions to furthering the sustainable prosperity and quality of life of Albertans. This year-end report highlights a few of ASRA's most significant accomplishments during this past year.

From sector-based initiatives to science promotion activities, ASRA has made a difference. Through the tireless efforts of ASRA Board and staff, the important role of science and technology contributions to the well being of Albertans, have been recognized by government and the general public. The results of an Angus Reid survey of Albertans, conducted during the Fall '97, indicated that 83% of Albertans consider scientific and technological research very important to the future of Alberta. In addition, 82% of Albertans believe investment in science and research should increase. These results validate the efforts ASRA has taken to increase business and government investment in R&D, and validates our strategy for "Sustaining the Alberta Advantage".

In "Sustaining the Alberta Advantage", released in September '97, ASRA presented a vision of growing Alberta's "Innovation-Based Economy" from its present 7% of the economy to 25% by 2020. This growth would mean sustainable employment opportunities for more than 450,000 Albertans in the value-added resource-based industries and non-resource-based high-knowledge manufacturing industries.

Looking to the future, we can expect many changes and challenges to occur in our provincial economy. Within ASRA, changes will also be occurring to meet these future challenges. At the forefront of these changes, will be the proclamation of the new Alberta Science, Research, and Technology Authority Act. When proclaimed, this Act will merge the ASRA and Alberta Research Council Boards to become a more effective agent in the provincial science infrastructure.



Dr. Robert J. Fessenden
President

October 1998

ASRA Mandate

The Alberta Science and Research Authority (ASRA) consists of a Board of Management reporting to the Minister Responsible for Science, Research and Information Technology. The Science and Research Authority Act, proclaimed on September 15, 1995, established ASRA's Mandate.

The strategic intent of ASRA is to increase the value of the socio-economic benefits to Albertans from science and research investments in Alberta. ASRA acts as a facilitator and influencer to stimulate science and research and encourage a strong economy. ASRA accomplishes this intent and its mandate through the establishment of task forces that address specific issues.

ASRA's Accomplishments

1997-98 was a very active year for ASRA. The involvement and resulting accomplishments by its task forces were many. This document is organized to give the reader a sense of the cumulative breadth and focus of ASRA's accomplishments, such as:

- Developing, promoting and implementing an innovation strategy for Alberta
- Undertaking performance measurement for science and research in Alberta
- Investing in strategic science and research initiatives through the Science and Research Fund
- Advancing a more competitive business environment for knowledge-based industries in Alberta
- Advancing the biotechnology industry in Alberta
- Advancing the information and communication technology industry in Alberta
- Advancing the health research industry in Alberta
- Reviewing Alberta Government science and research plans
- Increasing public awareness and support for science and research

Alberta Science and Research Authority's Legislated Mandate

The **Alberta Science and Research Authority (ASRA)** works in partnership with Government departments, agencies, and other stakeholders to:

- **Stimulate** research and development in Alberta;
- **Recommend** provincial science and research policy and priorities;
- **Conduct** an annual review of Government science and research programs;
- **Develop** and monitor a management plan for Government science and research investments;
- **Promote** communication on science and research; and
- **Encourage** science and research community and infrastructure to attain international excellence.

Developing an Alberta Innovation Strategy . . .

. . .*Sustaining the Alberta Advantage*

ASRA's mandate includes "developing science and research policy and priorities that are compatible with the economic and social policies and priorities of the Alberta Government". During 1997-98 the ASRA Board presented a strategy to grow Alberta's "innovation-based economy" from its current 7% to 25% of the Alberta economy by the year 2020. The Board developed this strategy through extensive consultation with Albertans and by building on the R&D Priorities Task Force work from 1996-97 concerning R&D priority setting within Alberta (see the

- that sustainable high-quality employment for our children and grandchildren will not be assured solely ASRA report: ASRA R&D Priority Setting Consultation: Guidance toward an R&D Strategy for Alberta). The strategy, "Sustaining the Alberta Advantage", was built on the following premises:through traditional resource-based economy;
- that in the 21st century, Alberta's future economic success will result from the application of knowledge-based industries to sustainable natural resources development;
- that success in the 21st century will require a continuing high level of innovation, based upon investments in science and R&D through which new knowledge and highly skilled people will be created; and
- that investment in science and R&D will build knowledge, our most important renewable resource, and increase our innovation capacity.

The ASRA report:

"Sustaining the Alberta Advantage:
Investing in Knowledge, Our Most Important Resource".

provides the details of the strategy. The strategy anticipates the needs of a successful, innovation-based economy. In an innovation-based economy, investment in science and research is the primary driver of business growth and success. The critical steps that Alberta must take to achieve research and development investments by industry of $2 billion/year by 2010 are listed in the following box.

CORRECTED PAGE

Developing an Alberta Innovation Strategy . . .

. . .Sustaining the Alberta Advantage

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- that sustainable high-quality employment for our children and grandchildren will not be assured solely through traditional resource-based economy;
- that in the 21st century, Alberta's future economic success will result from the application of knowledge-based industries to sustainable natural resources development;
- that success in the 21st century will require a continuing high level of innovation, based upon investments in science and R&D through which new knowledge and highly skilled people will be created; and
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Sustaining the Alberta Advantage: Critical Steps to achieve industry research and development investment of $2 billion annually by 2010.

1. Implement tax and regulatory policies that make Alberta competitive in growing and attracting research and development intensive, high-knowledge businesses and to ensure a lively venture-capital environment.

2. Ensure the availability of the highly qualified people needed by innovation-based industries by increased support for education and training.

3. Target increased government science and research investment in the following critical areas:
   - Research infrastructure – facilities and equipment
   - Broad-based university science and research
   - World-class research excellence in:
     - Information technology
     - Telecommunications and wireless technology
     - Energy production
     - Chemicals and plastics
     - Sustainable forestry and value-added forestry products
     - Agriculture and value-added agriculture products
     - Life sciences and biotechnology
     - Health and medicine
     - Environmental technologies
   - Application and commercialization of the technology products of research

4. Ensure stable industry funding for research in sustainable resource development and resource value-added industries

5. Build strategically important science and research intensive clusters, such as biopharmaceuticals, agri-food, information technology and telecommunications, by recruiting key companies.

Initiating performance measurement for science and research . . .

. . . Performance of Alberta's Innovation System

Alberta's "Innovation System" creates new ideas and applies knowledge to generate new products and services that improve the quality of Alberta's economy, communities, and environment. At the heart of the innovation system are the thousands of creative, imaginative people working in hundreds of institutions and businesses across the province. The system embodies not only research and development, but also the dissemination, commercialization, and application of knowledge and technology. Government, universities, and private enterprises all play important roles in converting research and technology into products and services that produce socio-economic benefit for Albertans.

Ultimately, the successful operation of the innovation system in Alberta results in:

- Alberta companies that are growing, and internationally competitive;
- high quality employment for Albertans;
- enhanced tax revenues for the Alberta government; and
- enhanced quality of life for Albertans.

In 1997-98, ASRA generated its first annual report card on the status of the Innovation System in Alberta, as part of "Sustaining the Alberta Advantage". The Authority intends to continue tracking the key indicators over time and will be reporting on them on an annual basis. The reporting framework developed for the report card will be modified over time to reflect current understanding of optimal system indicators.

Key indicators for the performance of Alberta's Innovation System

Investment in Research and Development

- Provides a comparison of investment in Alberta's innovation system with investment elsewhere in Canada and the world
- R&D investment by industry measures the outcome of ASRA's activities.

Human Capital Capacity

- The number of Highly Qualified Personnel is a critical determinant of success of the innovation system.

Outputs of Research

- Publications and patents represent two important indices of research productivity.

Investment in Knowledge-Based Firms

- Venture capital investment is an important vehicle for commercializing the results of research in the Innovation-based Economy. The level of venture capital investment serves as an index of how Alberta's innovation system compares with other provinces.

Performance of the "Innovation Based Economy"

- Contribution to GDP from energy value added, renewable resource value added, and high-tech manufacturing sectors track the growth of the Innovation-Based Economy.

Investing in strategic science and research . . .

. . . The Science and Research Fund

The Science and Research Fund was created to assist in the launch of science and research initiatives that will benefit Alberta's economy and the well being of Albertans. The Science and Research Authority Act enabled ASRA to establish the Fund as a means to provide financial support for initiatives that contribute to the science and research strategy of the Province. The Fund became operational in 1997 with a budget of $5 million. Funding may be provided for projects relating to:

- Developing science and research infrastructure;
- Enhancing knowledge and technology transfer from research to application and commercialization;
- High-value strategic initiatives in identified research application areas;
- Building and strengthening R&D partnerships; or
- Enhancing the human resource base.

During 1997-98 the ASRA Board recommended 5 projects for funding support for a total investment from the Fund of $3.34 million. In each case, ASRA support played a key, seeding role to leverage other partnership support. The five projects that received Fund support were:

- **The National High Field NMR Centre**
  University of Alberta

  The 800 MHz Nuclear Magnetic Resonance spectrometer will allow Alberta researchers, and others, to conduct leading-edge research in structural biology. Knowledge of biomolecular structures allows the design of new pharmaceuticals and materials for medical and industrial use.

- **The Level 3 Containment Facility**
  University of Calgary

  The construction of a Level 3 Containment facility will significantly enhance the efforts of Alberta and Canadian researchers to develop the next generation of vaccines for bacterial pathogens. This type of facility will add to Alberta's competitive advantage in the emerging biofermentation/biotechnology sector, and will enhance the R&D infrastructure within the province

- **Pacific Institute for the Mathematical Sciences (PIMS)**

  PIMS is a partnership of seven universities in Alberta and British Columbia. Through its programs PIMS has been instrumental in linking the skills of mathematics professionals to the needs of Alberta industry. Fund support will further these activities in Alberta.

- **The Enhanced Bio-NMR Facility**
  University of Calgary

  The 600 MHz solid-state Nuclear Magnetic Resonance spectrometer facility provides unique capabilities to study industrial carbohydrates, synthetic polymers, and catalysts. The availability of such a facility will allow Alberta researchers to conduct leading-edge research in the study of chemical properties and 3D structures of molecules for application in agriculture, health, pharmaceuticals, environment and the chemical industry.

- **WurcNet**

  WurcNet connects Alberta universities and research community with a high speed, large capacity computer network. This linkage enables and supports development of a wide-range of leading-edge computer applications. WurcNet's Next Generation Internet project will give Alberta one of the most advanced research networks in the world. In addition WurcNet's Wnet II will also play a significant role in the development of the Alberta segment of CA*net II and later Internet generations.

An example of partnerships at work: The National High Field NMR Centre

Nuclear magnetic resonance (NMR) is a tool used by structural biologists to solve structures of molecules in 3-dimensions. This 800 MHz NMR spectrophotometer, the strongest field strength commercially available, will enable researchers to determine complete 3-D structure of biomacromolecules and show how they function in biological systems on a molecular level.

Estimated Total Project Costs: $5.5 million

Funding Participants:

Federal:	Western Economic Diversification
	Medical Research Council (MRC)
	National Centres of Excellence, PENCE
Provincial:	ASRA, Science and Research Fund
	Advanced Education, Intellectual Infrastructure Partnership Program (IIPP)
	Alberta Heritage Foundation for Medical Research (AHFMR)
	Alberta Cancer Board
Universities:	University of Alberta
	University of Calgary
	University of British Columbia
	University of Manitoba
	University of Western Ontario
	University of Toronto
	Simon Fraser University

Use of Centre to support research and development

- Determine 3-D solution structures of fundamental building blocks of living things (carbohydrates, nucleic acids and proteins)
- Design new biological and pharmaceutical materials with applications in medicine, pulp and paper, petroleum, and food industries
- Shorten the drug discovery cycle

Building a competitive business climate. . .

. . . Tax Policies for the Knowledge-Based Economy

ASRA played an instrumental role in elevating R&D tax reform onto the provincial Government's agenda. ASRA board members and staff worked closely with many companies, industry associations, government officials and members of the legislature to develop a workable implementation of the critical recommendations of ASRA's 1996-97 study:

"Barriers to Technology Commercialization in Alberta".

At present, Alberta faces a serious competitive challenge in building the knowledge-based industries. Most other provinces have developed tax and fiscal incentives to attract companies and stimulate investment in knowledge-based industries. As a result, a critical mass of qualified people and infrastructure is being developed in other provinces, creating further challenges for Alberta in attracting the human resources to undertake new innovative activity.

"Knowledge-Based Industries" is the term used to describe young or emerging market sectors that are heavily R&D oriented, have high growth potential and are primarily exporters. They include information and communication technology, life sciences and health care, media and entertainment, advanced materials and manufacturing. The knowledge-based industries account for a significant component of the economic growth in Canada during the past few years, as well as most of the new job creation.

ASRA will continue to work with our stakeholders to ensure that Alberta is competitive with leading countries and Canadian provinces, in terms of attracting and retaining R&D intensive businesses, and to foster creation of a vibrant venture capital industry.

Tax measures that would address the competitive needs of knowledge-based industries (from: Barriers to Technology Commercialization in Alberta).

Provincial Tax Credit for Innovative Activities – available to Alberta companies undertaking eligible innovative activities. This would level the playing field with other provinces and attract investment in innovative activities that create high-paying, sustainable employment for skilled Albertans.

Tax Credit for Investment in Alberta-Approved Sponsored Venture Capital Funds – to stimulate the creation of pools of private capital for investment in Alberta companies engaged in innovative activities, a tax credit will be provided to participating Albertans. These funds will also provide important management strength to the emerging companies.

Early-Stage Private Investor Tax Credit – to encourage and reward investors in early-stage companies that ultimately become successful.

Advancing the Biotechnology industry . . .

. . . Key Infrastructure Initiatives

Building on the recommendations in the ASRA Biotechnology Task Force report:

"Commercialization of Biotechnology in Alberta"

ASRA undertook 3 initiatives in 1997 to advance the growth of the Biotechnology sector within Alberta.

Developing an action plan to establish the Alberta biotechnology industry association:

ASRA led an initiative with firms in the biotechnology sector to establish a biotechnology industry association. During 1997-98, industry representatives endorsed the concept, and committed to the development a business plan for this association.

Forming an Interdepartmental Biotechnology Committee:

Biotechnology, as a discipline and enabling technology, has application to many sectors. This cross-sectoral influence and involvement of many government departments and agencies flagged a need for the provincial government to have an integrated and coordinated response to biotechnology issues. In response to this identified need, an Interdepartmental Biotechnology Committee was struck to address issues of joint concern related to biotechnology. The team consists of representatives from the following departments/agencies:

- Advanced Education and Career Development,
- Agriculture, Food and Rural Development,
- Economic Development,
- Environmental Protection,
- Health,
- Intergovernmental and Aboriginal Affairs,
- Alberta Research Council (ARC), and
- Science and Research Authority (ASRA).

This team has identified a preliminary list of issues of joint interest and during 1998 will be working towards evolving coordinated approaches to address them. Of immediate concern for the team will be addressing Alberta's role in the review of the Canadian Biotechnology Strategy.

Launching the Biotech Alberta Information base:

Biotech Alberta, an information base of biotechnology firms in Alberta, was created to address the need to market Alberta's biotechnology capabilities. The database will accomplish this objective by:

- raising the level of awareness about the biotechnology infrastructure and industry in Alberta;
- highlighting opportunities to commercialize new technologies developed by the biotechnology sector; and
- identifying areas of potential investment in the province's biotechnology sector.

The Biotech Alberta Information Base can be found on the Internet at:

http://www.gov.ab.ca/sra/biotech/

The information base consists of:

- a database designed to store non-proprietary information about organizations, products, services, and individuals;
- a web page interface for searching; and
- a web page interface that allows individual companies to edit, update, or add information about their company to the website's database.

An important offshoot from the development of this information base, ASRA intends to use it as a model for other sector-related databases or research areas.

Advancing the Information and Communication Technology (ICT) industry . . .

. . . ICT Task Force

In 1997 the Minister Responsible for Science and Research was given the additional mandate of information technology. To assist the Minister in his new responsibility, in September 1997 the ASRA Board created an ICT Task Force. The Task Force was given the following terms of reference by the ASRA board:

> *"Prepare a report, which will go from ASRA to the Minister of Science, Research and Information Technology, recommending a strategy and action plan for the Government of Alberta, the information technology and telecommunications industry and others, to facilitate and promote the maximum possible development of the information technologies/telecommunications sector in Alberta."*

As a first step toward developing a comprehensive strategy to grow the ICT industry in Alberta, the Task Force conducted a consultation with over sixty-five (65) stakeholders and members of the ICT industry. The results of the consultation, in conjunction with information and recommendations from preceding relevant studies, will assist the Task Force in developing its recommendations for ICT sector development. The ICT Task Force report will be completed and released during 1998-99.

What the Stakeholders said . . .

. . . in response to the question:

"What actions should Alberta take to achieve our vision: that Alberta is the best place in the world to live, where every Albertan enjoys the world's highest quality of living?"

1. **Demonstrate leadership.**
2. **Adopt effective strategies to develop, recruit and retain highly qualified knowledge workers.**
3. **Focus on applications where the fundamental drivers create the most opportunities.**
4. **Make Alberta the haven for innovative activities in Canada.**
5. **Invest in cutting edge projects which drive technology and which are beneficial for industry and society in general.**
6. **Recruit additional multinational ICT companies to invest in Alberta.**
7. **Establish one or more internationally recognized Centres of Excellence in the field of ICT to develop technology and attract outstanding individuals.**
8. **Strengthen business networking in the ICT sector.**
9. **Launch society-shaping projects.**

Advancing the Health Research industry . . .

. . . coordinating Health R&D

The Health Research Strategy Advisory Group was established during 1997 to provide a coordinated approach to, and to advise Government on, strategic issues related to health research in the province. The scope of health research to be considered will encompass basic through applied research in all areas of health research, referenced by the following broad groupings:

- basic and clinical biomedical, and
- health systems (including health services, population health and health informatics research).

As an initial task, the Health Research Strategy Advisory Group, will be developing a strategic plan for health research in the province. The Group directed a working committee, consisting of representatives from the major health research stakeholders in the province, to develop the draft health research strategy for their review and approval. The timetable for the proposed strategy document is 1998/99.

Members of the Health Research Strategic Advisory Group.

Jack MacLeod *(chair)*
Alberta Science and Research Authority

Frank Eden
Chair, Chinook Regional Health Authority

Alvin Libin
Chair, Board of Trustees
Alberta Heritage Foundation
for Medical Research

Lloyd Malin
Chair, Board of Governors
University of Alberta

J.R. (Bud) McCaig
Chair, Calgary Regional Health Authority

Marv Moore
Chair, Alberta Cancer Board

J.E. (Ted) Newall
Chair, Board of Governors
University of Calgary

Neil Wilkinson
Chair, Capital Regional Health Authority

Ex officio

Hon. Dr. Lorne Taylor
Minister, Science, Research and Information Technology

Hon. Clint Dunford
Minister, Advanced Education & Career Development

Hon. Halvor Jonson
Minister, Minister Health

Reviewing Alberta Government science and research plans . . .

. . . *linking research with strategic objectives*

As required by the Alberta Science and Research Authority Act, ASRA is to:

> *"conduct an annual review and evaluation of all Government science and research policies, priorities and programs and their compatibility with the economic and social policies of the Government and to recommend to Executive Council the amount of public money that a program should receive."*

As such, ASRA conducted its third annual review of the Science and Research Plans of provincial government departments and agencies during September and October, 1997. Over the three years that ASRA has conducted this review, departments have become better at linking and aligning their research activities to departmental strategic objectives. The results of this latest review were submitted to Cabinet in November.

The review contained in three general recommendations to Government as well as specific department recommendations. The three general recommendations were:

- That Government increase its funding commitment to research and development by a minimum of $10 million in 1998/99, and thereafter at a minimum rate of $15 million per year until 2010, to enable strategic investments that build an internationally recognized research and technology development capability in Alberta.
- That Departments examine their relationships with other Departments and initiate efforts to reduce existing barriers.
- That Departments ensure performance measures are incorporated into research programs and identified in the Research Business Plans, to ensure they (Departments) are accountable for the outputs and outcomes of their programs.

In keeping with our mandate to "develop and monitor a management plan for Government science and research investments". ASRA undertook steps during 1997 to shift the government R&D review process from being tactical and at the end of the business planning cycle to being more strategic and at the start of the business planning cycle.

Increasing public awareness and support for science and research . . .

. . . Promoting science and research

Science and research affect every aspect of our lives and generate wealth and jobs for Albertans. ASRA, together with the Minister Responsible for Science, Research and Information Technology, seeks to maximize the effectiveness of the outputs of science, research and technology. Increasing public awareness and support of science and research is one tool by which ASRA and the Minister can accomplish their overall objective.

Within its mandate, ASRA has the responsibility for promoting science and research in Alberta. In fulfilling this responsibility, ASRA:

- works in partnership with many organizations and agencies,
- supports science events in Alberta,
- highlights Alberta science and research successes and capabilities through its web site, media events and other activities, and
- publishes reports of the Board's Task Forces on R&D issues and economic effectiveness.

The goal of these activities is to create and foster public awareness of the important role that science and technology has in developing a knowledge-based economy for Alberta's future success. Albertans do appreciate this important role, as demonstrated by the results of an ASRA-sponsored Angus Reid survey, conducted in August 1997. The survey found that 83% of Albertans consider scientific and technological research very important to the future of Alberta. In addition, 82% of Albertans believe investment in science and research should increase.

Moving towards the future . . .

. . . Mountains yet to Climb

The Government of Alberta's vision of the future is:

> *"A vibrant and prosperous province where Albertans enjoy a superior quality of life and are confident about the future for themselves and their children."*

This future prosperity of our province will draw on the continued development of its traditional natural resources (agriculture, forestry and energy), and on a fourth natural resource – people and knowledge. The ASRA strategy, outlined in "Sustaining the Alberta Advantage", states that this future prosperity will be based on innovation, which necessitates that the elements of the Alberta Innovation System be working extremely well.

An effective innovation system would have the following characteristics:

- Government policy positions that are clearly informed by a strong evidence base, derived from research;
- A business climate that encourages the investment in research by business and government;
- Research priorities that are clearly, and mutually understood by all research funders and providers;
- A research community that is responsive to the needs of, and supported by, both government and industry; and
- A research and technology commercialization infrastructure that contributes the necessary people and facilities to enable innovation to happen.

Creating an effective innovation system is a shared responsibility between government, business, universities, and individuals. ASRA's role is to act as a facilitator, influencer, and enabler to cause system improvements.

With the release of its draft strategy "Sustaining the Alberta Advantage", ASRA outlined what it believes it will take to create and maintain an innovation system that supports sustainable prosperity and quality of life for all Albertans. As ASRA's vision, this document identifies the focus for ASRA's continuing efforts to make the Innovation System more effective.

- **Promote** implementation of the strategies in "Sustaining the Alberta Advantage: Investing in Knowledge, Our Most Important Renewable Resource".
- **Promote** a supportive business environment that is competitive with leading countries and Canadian provinces in attracting, growing and retaining R&D intensive high-knowledge businesses.
- **Pursue** the implementation of the recommendations from the "Barriers to Technology Commercialization" Report.
- **Promote** the development and implementation of sector-specific plans to increase industry funding for R&D in key sectors by working with government departments, management bodies and industry organizations..
  - Develop a strategic plan for the development of the information and communication technology sector.
  - Continue to promote the development of an Alberta biotechnology industry association and to encourage the development of the province's biotechnology industry.
  - Continue to encourage the coordination of health research in Alberta.
- **Encourage** and facilitate the increasing effectiveness and efficiency of government R&D programs and investment.
  - Encourage alignment between ministry research activities and strategic objectives.
  - Recommend strategic investments in science and research by the Alberta government.
- **Promote** research excellence in Alberta's universities in consultation and cooperation with Advanced Education and Career Development.
- **Maintain** and improve the performance measurement framework for science and research in Alberta.
- **Promote** a "science culture" within Alberta by working with other science-oriented public and private-sector organizations.

ASRA Publications

Sustaining the Alberta Advantage: Investing in Knowledge, Our Most Important Renewable Resource. September 1997.

Inventory of Science Promotion Activities in Alberta, First Edition: June 1997.

1997-98 Research Overview Report: Government Science and Technology Programs and Budgets. August 1997.

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Health Research: A Strategic Opportunity for Albertans. August 1996.

Barriers to Technology Commercialization in Alberta. July 1996.

Selected Alberta Science and Research Success Stories. March 1996.

The Commercialization of Biotechnology in Alberta. November 1995.

Scientific and Technical Activities Overview, 1995/96.

Alberta's Information Technology and Telecommunications Infrastructure: Building on our Strengths. March 1994

ASRA People

Board of Management

Mr. Albert Bell*
President, Albert Bell Development Consultants

Ms. Edwina Bobocel*
Sr. Consultant, Community Ventures Ltd.

Mr. Len Bolger
Chairman, Advatech Homes Canada, Ltd.
Appointed 08/27/97

Mr. John Brick*
Account VP Alberta, NORTEL
Appointed 09/24/97

Dr. Elizabeth Cannon
Professor, Department of Geomatics Engineering, University of Calgary
Appointed 01/21/98

Dr. Robert Church* (*Chair*)
Owner, Lochend Luing Ranch

Dr. William Cochrane*
President, W.A. Cochrane & Associates Inc.

Dr. Ruth Collins-Nakai
Faculty of Medicine, University of Alberta

Mr. Victor Doerksen
(*Vice-Chair*)
Chairman, Alberta Research Council
MLA, Red Deer South
Appointed 08/27/97

Dr. Robert Fessenden*
President, ASRA

Mr. Edward Fitzhenry
President, Pelorus Navigation Systems
Appointed 08/27/97

Dr. Robert Foster
President & CEO, Isotechnika Inc.
Appointed 09/24/97

Dr. Marvin Fritzler
Associate Dean (Research), Faculty of Medicine, University of Calgary
Appointed 01/21/97

Dr. Brian Gaines
Dean, Faculty of Graduate Studies, University of Calgary
Appointed 01/21/98

Mr. David Kitchen*
Senior VP (retired), Royal Bank of Canada
Appointed 10/28/97

Dr. David Lynch
Dean of Engineering, University of Alberta
Appointed 09/24/97

Mr. Jack MacLeod*
Corporate Director

Mr. John McDougall*
Managing Director & CEO, Alberta Research Council

Dr. Michael Percy
Dean, Faculty of Business, University of Alberta
Appointed 01/21/98

Mr. Glenn Rainbird*
President & CEO, TRLabs

Dr. Rob Rennie*
VP, New Products R&D, Agrium Ltd.

Hon. Dr. Lorne Taylor
Minister Responsible for Science, Research & Information Technology
MLA, Cypress-Medicine Hat

Dr. Howard Tennant
President and Vice Chancellor, University of Lethbridge
Appointed 08/27/97

Mr. Wayne Thorp
General Manager, Alberta Woodlands, Daishowa Marubeni International Ltd.
Appointed 08/27/97

Resigned during 1997-98:

Dr. Len Bruton,
Professor of Engineering, University of Calgary

Mr. Monte Montemurro
Senior VP & Chief Technical Officer, Pan Canadian Petroleum Ltd.

Mr. Michael Pfeiffer
President and CEO, QC Data International

Mr. Ed Stelmach
MLA, Vegreville-Viking

Mr. Ben Thorlakson
President, Thorlakson Feedyards

* denotes member of the Executive Committee

Secretariat

Ms. Arlane Caruk
Administrative Officer

Ms. Daphne Cheel
Science Advisor

Dr. Robert Fessenden
President

Ms. Marie Gillis
Administrative Assistant

Ms. Catherine Gordey
Communications

Dr. Ted Heidrick
(resigned)

Ms. Carol Isherwood
Receptionist/Administrative Assistant

Mr. Marvin Mishio
Science Advisor

Dr. Bill MacDonald
Senior Science Advisor

Dr. Stephen Moran
Senior Science Advisor

Ms. Barbara Nyland
Director

Ms. Lynn Sutherland
Senior Science Advisor

ASRA Task Forces

Biotechnology

The Biotechnology Task Force was established to promote the growth of the biotechnology sector within Alberta. The task force accomplishes this goal by making recommendations and monitoring actions to encourage the application and commercialization of biotechnology in Alberta.

Members

Dr. William Cochrane (*Chair*)

Dr. Ruth Collins-Nakai

Dr. Robert Fessenden

Ms Cheryl Knebel, C.A.
National Entrepreneurship Development

Dr. Tony Noujaim, President & CEO
Altarex Inc.

Ms. Barbara Nyland (*Secretariat Liaison*)

Mr. Tom Ogaranko
Knowledge Channel Corporation

Mr. Bern Philip
Director, Biotechnology
Alberta Economic Development

Dr. Rob Rennie

Dr. Alfred Sailer
Life Science Specialist
Acumen Capital Finance Partners Ltd.

Communications

The Communications Task Force was established to increase the understanding and acceptance of all stakeholders of the importance of science and research to the long-term prosperity and quality of life of Albertans. As such, the Task Force endeavours to create and foster public awareness through media events highlighting major government investments in research infrastructure, sponsorship of the National Science and Technology Week in Alberta and other science promotion events, and publication of reports based on the work of other ASRA Task Forces.

Members

Ms. Edwina Bobocel (*Chair*)

Ms. Carmen Forster
Director, Corporate Relations
Alberta Research Council

Mr. Albert Bell

Mr. Ken Faulkner
Executive Assistant to the Minister Responsible for Science, Research, and Information Technology

Dr. Robert Fessenden

Ms. Catherine Gordey (*Secretariat Liaison*)

Health

The focus of the Health Task Force is improved health research coordination within the province of Alberta. The task force does this by making recommendations and monitoring actions to ensure that Alberta maintains and builds on its health research expertise for the economic and quality of life benefits of all Albertans.

Members

Mr. Jack MacLeod (*Chair*)

Mr. Albert Bell

Dr. Robert Church

Dr. Ruth Collins-Nakai

Dr. Robert Fessenden

Ms. Barbara Nyland (*Secretariat Liaison*)

Government R&D

The Government R&D Task Force was formed to address the mandated need for ASRA to review all government departments research & development plans and expenditures. Each year the Task Force publishes its annual review of Government R&D activities.

Members

Mr. Albert Bell (*Chair*)

Ms. Edwina Bobocel

Dr. Robert Fessenden

Mr. Bill MacDonald (*Secretariat Liaison*)

Dr. George Miller

R&D Priorities

The R&D Priorities Task Force was formed to identify priority areas and initiatives that are strategically important for Alberta's future. In addition, the Task Force is responsible for monitoring and reporting on the performance of Alberta's innovation system.

Members

Mr. John McDougall (*Chair*)

Ms. Edwina Bobocel

Dr. Ruth Collins-Nakai

Dr. Robert Fessenden

Dr. David Lynch

Mr. Glenn Rainbird

Mr. Ben Thorlakson

Mr. Wayne Thorp

Dr. Stephen Moran (*Secretariat Liaison*)

ASRA Task Forces

Information and Communication Technology (ICT)

The ICT task force was created in September 1997. The task force was charged with developing recommendations for strategies that would result in maximum possible development of the information and communication technology sector in Alberta. The major effort for this group in 1997-98 was a consultation with information and communication technology stakeholders in Alberta. The consultation results will assist the task force in developing its recommendations for ICT sector development.

Members

Mr. John Brick (*Chair*)

Dr. Ruth Collins-Nakai

Mr. W.D. (Bill) Croft, President
Calgary Research & Development Authority

Mr. Ken Faulkner
Executive Assistant to the Minister Responsible for Science, Research and Information Technology

Dr. Robert Fessenden

Mr. Brian Gibson, VP Business Services
Telus Corporation

Mr. Roger Jackson, Deputy Minister
Alberta Economic Development

Mr. Michael Pfeiffer

Mr. Tom Ogaranko
Knowledge Channel Corporation

Mr. Glenn Rainbird

Mr. George Samoil, CIO
Alberta Government

Ms Lynn Sutherland (*Secretariat Liaison*)

Dr. Mo Watanabe, Professor Emeritus
Faculty of Medicine, University of Calgary

Research Excellence & Synergies

The Research Excellence & Synergies Task Force was established to make recommendations and monitor actions to ensure that the objectives and goals of the Alberta government are implemented in the university research system

Members

Dr. Rob Rennie (*Chair*)

Dr. Robert Church

Dr. Robert Fessenden

Dr. George Miller

Ms. Barbara Nyland (*Secretariat Liaison*)

Dr. Michael Percy

Dr. Howard Tennant

Science & Research Fund

The Science & Research Fund Task Force was established to provide advice to the ASRA Board of Management on investments from the Science & Research Fund to support strategic initiatives that produce human, social, environmental, or economic benefits for Albertans.

Members

Mr. Glenn Rainbird (*Chair*)

Mr. Len Bolger

Dr. Ruth Collins-Nakai

Dr. Robert Fessenden

Mr. Edward Fitzhenry

Dr. Bill MacDonald (*Secretariat Liaison*)

Dr. Michael Percy

Dr. Howard Tennant

Technology Commercialization

The Technology Commercialization Task Force provides guidance on the operation of Alberta's support for application and commercialization of technologies arising from science and research. The Task Force's primary focus has been on the tax system and its role in facilitating or obstructing the commercialization process.

Members

Dr. David Kitchen (*Chair*)

Ms. Edwina Bobocel

Dr. Robert Church

Dr. William Cochrane

Mr. W.D. (Bill) Croft, President
Calgary Research & Development Authority

Mr. Brian Felesky
Felesky Flynn

Mr. John Ferguson
Princeton Developments

Dr. Robert Fessenden

Dr. Robert Foster

Mr. Bruce Healy
AVAC Ltd.

Mr. Art Smith
Alberta Economic Development Authority

Mr. Ben Thorlakson

Dr. Stephen Moran (*Secretariat Liaison*)

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